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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Robert R. RICCI et al.

Group Art Unit: 3651

Appln. No. : 10/624,649

Examiner: Douglas A. Hess

Filed : July 23, 2003

For : **FEEDER LOAD AUTOMATION SYSTEM AND METHOD OF USE**

United States Patent and Trademark Office
Customer Service Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, VA 22314

DECLARATION UNDER 37 C.F.R. §1.132
OF
BRUCE HANSON

Sir:

I, Bruce Hanson, declare as follows:

1. I am a graduate of the University of Minnesota, Institute of Technology, Minneapolis, Minnesota, with a Bachelors degree in electrical engineering. I graduated in 1975.

2. I am a graduate of the State University of New York, with a Masters Degree in Business Administration. I graduated from the State University of New York in 2003.

3. I have been an employee of Lockheed Martin Corporation from 1975 to present, through mergers in the industry. My present title is Staff Systems Engineer. In my present capacity as Staff Systems Engineer my responsibilities and tasks include the design, support, procurement and implementation of integration systems. In particular, my responsibilities include the architectural designs for large mail integration systems. This function includes the design and implementation of feeder heads, flat sorting machines, large scale integration

systems, sequencing and sorting systems, amongst other systems. Many of the systems in which I design use conveyors, lifting and rotation mechanisms, and sensors, amongst other subsystems.

4. I hold many patents related to mail integration systems. A partial list of these patents includes:

a. USPN 7,006,891: Flats bundle processing system;

b. USPN 6,926,271: Flat mail edge biasing machine and method of use;

c. USPN 6,924,451: Method for sequentially ordering objects using a single pass delivery point process; and

d. USPN 6,921,875: Method for sequentially ordering objects using a single pass delivery point process.

5. My education and years of service as an engineer in the field of mail integration systems, using mail feeders and conveyance technologies such as, for example, belt feeders, roller feeders, and lifting and tilting mechanisms in such integration systems, establish me as an expert in the field of mail integration systems. This qualifies me to provide evidence on the level of skill in the art and on what would be obvious to one of ordinary skill in the art.

6. A person of ordinary skill in the art would have an engineering degree and approximately 3 years of experience in the design, construction or repair of integration systems using subsystems such as conveyors, lifting mechanisms, rotation mechanisms and feeder technologies.

7. I have reviewed the patent application having Serial No. 10/624,649 and the Office Action dated March 8, 2006. My review of the patent application having Serial No. 10/624,649 included reviewing Figures 1-6 and reading the entire specification including the "Detailed Description of Embodiments of the Invention", "Summary of the Invention" and "Claims" sections in great detail. I have also reviewed the Office Action dated October 21, 2005, in addition to Applicant's response thereto dated December 22, 2005.

8. I have also reviewed the references used in rejecting claims 1-18 of the patent application having Serial No. 10/624,649, as set forth in the March 8, 2006 Office Action. These references include U.S. Patent No. 5,222,857 to Hasegawa, U.S. Patent No. 5,427,252 to Teegarden and U.S. Patent No. 4,119,219 to Carlson.

9. After reviewing the above documents related to patent application having Serial No. 10/624,649, it is my expert opinion that the disclosure of the invention, as read in its entirety, would provide the level of detail necessary to enable one of skill in the art to make and use the claimed invention without undue experimentation. It is thus my expert opinion that the specification and drawings provide enough detail as to how the tilt head is pivotally connected to the pallet lift, how the separation conveyor moves into the separation space at the platform and unloads the product onto the staging conveyor and how all of the components interrelate and work with each other. I thus respectfully disagree with the Examiner's assertion in the March 8, 2006 Office Action that claims 1-18 contain subject matter which was not enabled by the disclosure.

10. After reviewing U.S. Patent No. 5,222,857 to Hasegawa, U.S. Patent No. 5,427,252 to Teegarden and U.S. Patent No. 4,119,219 to Carlson, it is my further expert opinion that these references do not show or suggest the combination of features recited in claims 1-18, as discussed in further detail below.

11. Referring specifically to the Examiner's argument spanning pages 4 and 5 of the Office Action of March 8, 2006, in my expert opinion the disclosure, including a review of the drawings, would enable one of ordinary skill in the art with the knowledge, and without any undue experimentation necessary, to use a hinge, as shown and described, to tilt the head with respect to the pallet lift conveyor. For example, the use of the hinge is clearly shown in Figure 2 and described at the first full paragraph at page 7. Illustratively,

> .... The depalletizer subsystem 120 further includes a tilt head 124, which may be hinge mounted to the pallet lift conveyor 123 by a hinge 125 or mounted in another conventional manner. (Emphasis added)

12. Although the Examiner acknowledges that the hinge is a well known conventional feature, the Examiner remains of the opinion that the hinge 125 is only attached to the tilt head 124 and does not show the connection to the pallet lift 123. The Examiner is of the opinion that the hinge would require an additional feature, over and above a simple hinge. The Examiner states that because the tilt head 124 and the pallet lift 123 are vertically adjustable with respect to each other, a simple hinge would not provide enough detail. Further, the Examiner is of the opinion that the connecting device of the hinge 125 to the pallet lift could conflict with the space in which the pallets enter the lift 123 from the pallet input conveyor 110. I respectfully disagree with the Examiner's assertions.

13. One of skill in the art would readily understand, from reading the disclosure, that the hinge mount may work in many different ways, all of which are conventional. In one example, the hinge may be mounted to the same structure in which the pallet lift conveyor is mounted such as, the floor. Alternatively, the hinge may be mounted to some other structure such as, for example, a nearby wall or ceiling. Also, the hinge may be mounted to the pallet lift, itself. In these configurations, the tilt head is capable of tilting at angles in order to permit the tilt head to pick up the top layer of product such that the separation conveyor can be inserted between layers of product, and thereafter, the top layer can be placed on the separation conveyor for takeaway. Since these features are so conventional and one of skill in the art would readily be able to implement the hinge mount, it is submitted that these features do not have to be explicitly shown in detail in the figures for one of skill to understand the invention.

14. It is my expert opinion that although the hinge is shown as a box in Figure 2, one of skill in the art, after reading the disclosure of U.S. application having Serial No. 10/624,649, would know what type of hinge to use with the system. Without any undue experimentation, it is my opinion that one of skill in the art would recognize that a hinge, such as, for example, a

pivot slide hinge which allows both pivoting and sliding movement, could be used with the system. Such a hinge is well known in the art, e.g., see http://www.hardwaresource.com. In my expert opinion, this type of hinge does not need to be shown in detail, simply due to the fact that one of skill in the art of mail integration systems would be well acquainted with such hinges and would, in my opinion, be well versed in using such hinges in the system as described in U.S. application having Serial No. 10/624,649, without any undue experimentation.

15. For example, by using the pivot slide hinge described in paragraph 14, the tilt head would be allowed to open to 90 degrees and slide back and forth with respect to the pallet lift. In this manner, the tilt head would be able to move upwards and downwards, allowing pallets to be inserted on the lift device. Also, by allowing such sliding movement, the tilt head could be slid downwards in order to lift the product placed on the lift mechanism. Additionally, it is my expert opinion that such a pivot slide hinge can be mounted in any of the configurations described in paragraph 13, and that such configurations and uses as described herein would be readily understandable by those of ordinary skill in the art after reading the entire disclosure of U.S. application having Serial No. 10/624,649. There would be no need for undue experimentation to use such a configuration.

16. Additionally, it is my expert opinion that one of ordinary skill in the art would readily understand, from reading the disclosure of U.S. application having Serial No. 10/624,649, that the hinge would not interfere with the pallet input conveyor, and more specifically, with the intake of pallets onto the pallet lift 123. In particular, one of ordinary skill and general knowledge in the field of mail integration systems would be able to use the hinge with the tilt head, in the manner described, without undue experimentation. Specifically, page 6 of the application having Serial No. 10/624,649 clearly describes that the lift device may be any known lift mechanism such as a scissors-type lift mechanism, pneumatic or hydraulic cylinder/piston assembly, a linear actuator, a chain or belt driven mechanism or the like. Also, the pallet lift conveyor 123 is capable of rotating, as designated by arrow "A". In these configurations, for example, one of skill in the art would readily understand that the pallet lift

conveyor 123 can be rotated by, for example, 90 degrees such that the hinge shown in Figure 2 can be moved away from the pallet input conveyor 110. In this manner, product intake can be provided onto the pallet lift conveyor 123, without interference of the hinge.

17. It is my further expert opinion that the representation shown in Figure 2 is accurate and would enable one of skill to practice the invention without undue experimentation. In the field of integrated mailing systems, it is common to represent, schematically, subcomponents such as, for example, hinges, stoppers, aligning mechanisms and the like in terms of general outlines and shapes, sometimes without showing any mounting component. For example, U.S. Patent No. 5,222,857 to Hasegawa, one of the references cited in the Office Action of March 8, 2006, specifically discloses that the aligning stopper 25 is fixed to a arm 27 which is connected to a supporting frame (see, col. 4); although, Figure 2 does not show such connection to the supporting frame. Similarly, U.S. application having Serial No. 10/624,649 clearly discusses the mounting method of the hinge, without the need to show in great specificity the mounting method, thus enabling one of skill in the art to practice the invention without undue experimentation.

18. The Examiner is also of the opinion that the rotatable platform as added in the drawing correction lacks the necessary detail. The Examiner is of the further opinion that "the rotary platform by itself is well known in the art, however, the addition of a shown scissors jack arrangement of lifting the pallet lift 123 does not readily allow one how the lift platform can be rotated when rigidly connected to a scissors jack as shown in the drawing figure 2. " I respectfully disagree with the Examiner.

19. In my expert opinion, one of skill in the art would know how to implement the rotary device in view of the Figures and disclosure of U.S. application having Serial No. 10/624,649. As described in the specification at page 6, by way of one example, in a lowered position, the pallet lift conveyor 123 may rotate 90 degrees, if necessary, so that short ends of the bundles on the top layer of bundles on the pallet (placed on the pallet input station 110) will face the staging conveyor 200. This rotation may be effected by a gear system, a belt and gear

system or other known mechanisms. These types of rotary systems are well known in the art and, in my expert opinion, needs no further explanation for one of skill in the art to practice the invention without undue experimentation.

20. Also, it would be readily understood by those of skill in the art, without undue experimentation, that the scissor jack may be mounted in tracks on the underside of the pallet lift conveyor. Such a configuration would be normal and well within the knowledge of one of skill in the art. This would be easily implemented by one of skill in the art when reading the disclosure. Alternatively, the scissor jack may be rotatably mounted to the rotation mechanism, in which case, the scissor jack may be rigidly affixed to the pallet lift conveyor by means of the rotation mechanism. In my expert opinion, this can be discerned from the representation of Figure 2 and the description at page 6 of the specification.

21. Additionally, although either scenario noted in paragraph 20 is a rigid mount, in the track implementation, the tracks allow the freedom for the pallet lift conveyor 123 to rotate. This type of system is well known to one of skill in the art of mail integration systems. In such a system, one of skill in the art could readily implement a rotation mechanism, such as a simple ball and socket mechanism, allowing the pallet lift conveyor to rotate using the tracks.

22. Moreover, the disclosure further contemplates different types of lifting mechanisms, other than the scissor jacks. As noted in the specification at page 6, the lifting mechanism may be a hydraulic or pneumatic cylinder/piston assembly, a linear actuator or a chain or belt driven mechanism. In any of these configurations, one of skill in the art would easily be able to effectuate a rotation motion of the pallet lift conveyor, without undue experimentation. By way of example, which would be known to one of ordinary skill and general knowledge in the field, the rotation mechanism can be a simple ball and socket mechanism, which is mounted to the lifting mechanism, itself.

23. The Examiner is also of the opinion that the separation conveyor 127 lacks detail. The Examiner is of the opinion that because of the complexity of the interaction between the

staging conveyor 200, the tilt head 124, the pallet lift 123, the rotation device "R" and the separation conveyor 127, one cannot easily understand the interaction of all of the components with respect to the separation conveyor 127. The Examiner provides the following example,

> It appears the separation conveyor must slide with the limits of the tilt head 124 to be able to support the objects dropped from the tilt head 124. After this step, the separation conveyor 127 must shift the articles over the staging conveyor 200. This is not clear how the separation conveyor 127 can drop the objects onto the staging conveyor 200 without having some sort of widening device so that the articles can be dropped down onto the staging conveyor.

24. It is my expert opinion that the specification and drawings of U.S. application having Serial No. 10/624,649 are clear and definite and provides one of skill in the art the level of detail (i.e., enable one of skill in the art) how (i) the product is lifted to create a separation space at the platform 123, and (ii) the separation conveyor 127 moves into the separation space, moves the product to the conveying mechanism and then drops the product onto the conveyor. For example, Figure 4 shows a schematic view of the tilt head, having a grasping mechanism 126, which is capable of grasping and lifting the product to form a separation space. This is described in detail at page 7 of the specification of U.S. application having Serial No. 10/624,649. The tilt head may also have a vacuum to effectuate the lifting and creation of the separation space, as described at page 7 of the specification of U.S. application having Serial No. 10/624,649. The components can be controlled by a controller "C", in conjunction with sensors "S", as disclosed at page 6 of the specification. Additionally, the specification at page 10 discloses, in part

> ... the separator/conveyor 127 includes an arm portion 128 having rollers or other conveying mechanism 129. The arm 128 is designed to extend into the separation space provided by the tilt head and the conveyor mechanism 129 .... The arm 128 may be retracted and extended by any known mechanism such as by rotation, sliding, etc.

25. It is my expert opinion that one of skill would be able to easily implement the invention after reading the entirety of the disclosure, without undue experimentation. As should be readily understood from Figure 5 and the above noted disclosures, the tilt head can lift product to form the separation space, via a grasping or vacuum mechanism. Once the product is lifted by the tilt head using, for example, the grasping or vacuum mechanism, the separator/conveyor 127 may extend by any known mechanism such as by rotation, sliding, etc. into the separation space. The product is then dropped onto the separator/conveyor 127, via deactivation of the grasping or vacuum mechanism, at which time the separator/conveyor 127 is moved toward the staging conveyor 200. The separator/conveyor 127 is then able to load the product onto the staging conveyor. These components are controlled by a controller "C", in combination with sensors "S", all of which can be easily implemented by one of skill in the art of integration systems.

26. Also, despite the Examiner's assertion, there is no need for a "widening device" on the separator/conveyor 127 to unload the product. Instead, the specification, clearly describes the use of a roller, which is used to drop the product on the staging conveyor. Specifically, the specification at page 7, lines 25-28 discloses:

> Moving the separator/conveyor 127 backwards can be performed while the staging rollers on the separator/conveyor 127 deposit the full layer of the bundles on the staging conveyor 200.

This provides clear guidance to one of skill in the art as to how to unload the product from the separator/conveyor 127 to the staging conveyor, e.g., using rollers. Again, as disclosed in the specification, these components can be implemented by the controller "C".

27. Thus, it is my expert opinion that the specification and drawings are clear and definite and provides one of skill in the art the level of detail as to (i) how to lift the product to create a separation space at the platform 123 (e.g., grasping mechanism or vacuum), and how the separation conveyor 127 moves into the separation space (e.g., conventional mechanism), moves the product to the conveying mechanism and then drops the product onto the conveyor (e.g., rollers). No undue experimentation would be needed to practice these steps.

28. In conclusion, in view of the above, I submit that the disclosure of patent application having Serial No. 10/624,649, as originally filed, clearly teaches the claimed invention, and that one of ordinary skill in the art, after reading the disclosure (as originally filed) would be able to make and use the claimed invention without undue experimentation. It is also my expert opinion that claims 1-18 contain subject matter which was described in the specification in such a way as to reasonably convey to one of skill in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention.

29. It is my further opinion that the features of claims 1-18 are not shown in any combination of U.S. Patent No. 5,222,857 to Hasegawa, U.S. Patent No. 5,427,252 to Teegarden and U.S. Patent No. 4,119,219 to Carlson.

30. The Examiner is of the opinion that Hasagawa shows all of the features of claims 1-6, 8, 11, 13-16 and 18. It is my expert opinion that the Examiner has misinterpreted the Hasagawa reference and that Hasagawa does not show the features as recited in the claims of patent application having Serial No. 10/624,649. For example, Hasagawa does not show the following features of claims 1 and 13:

> ...a head mechanism having a holding device for lifting a top layer of bundled product in a first orientation from the pallet to provide a separation space between the top layer of bundled product and a next, lower layer of bundled product on the pallet ...
> (Claim 1)
>
> ...means for providing a separation space between a top layer of the bundled product and an adjacent lower layer of bundled product or the pallet...
> (Claim 13)

31. In my expert opinion, Hasagawa shows carriage rollers 10 which are advanced toward the product. As the carriage rollers 10 advance toward the top layer of the product, as shown in FIG. 4b, the carriage rollers 10 will force itself underneath the top layer of the product, while the stop arm 23 prevents movement of the product. The top layer of product,

however, is not separated from a lower layer or product, nor is the stop arm a head mechanism. As the carriage rollers 10 further advance, a single layer of the product will be moved onto the carriage rollers 10. As disclosed at col. 6, the top carriage rollers 10a abut on the adjacent side of the uppermost layer of the load W, and the load is held between the upper stopper 23 and the top carriage rollers 10 and is picked up by the friction force of the top carriage rollers 10a. However, there simply is no separation space between the top layer of bundled product and a next, lower layer, nor is there any device which can provide such a feature. Instead, the carriage rollers 10 advance underneath the top layer by actually forcing itself underneath the top layer, and then transporting the top layer away from the stack. In my expert opinion there is no reasonable interpretation of Hasagawa which would lead one of skill in the art to believe that a separation space is created by a head mechanism or other means.

32. It also my expert opinion that the elements 23 and 25 are not designed to be a head mechanism, as recited in the claimed invention, nor are these elements designed to lift the top layer of product. After a careful reading of the Hasagawa reference, it is my opinion that element 23 is a lower stopper and element 25 is an aligning stopper. These stoppers are used to hold the product or load, W, while the carriage rollers advance underneath the topmost layer, via a frictional force. One of skill would readily recognize, also, that the stoppers 23 and 25 are not designed to pick the load up to create a separation space, nor is this possible with the two stoppers. For example, stopper 23 is mounted in a linear fashion to the rail 4. This would prevent the stopper from being movable or rotatable to lift the load in order to create a separation space.

33. It is also my expert opinion that U.S. Patent No. 5,427,252 to Teegarden and U.S. Patent No. 4,119,219 to Carlson do not show a device, which creates a separation space.

34. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application and any patent issuing thereon.

Date: 4/13/2006

Bruce Hanson